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HEALTH AND SAFETY HANDBOOK



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Ministry
of the
Environment

Revised 1988

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FOREWORD

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Accident, injury and occupational illness prevention is an integral part of every job activity associated with the Ministry.

The Ministry, through all levels of management provides a healthy and safe working environment for all employees, and the protective equipment, clothing and tools for carrying out a variety of job functions. Supervisors provide their employees with the most up-to-date health and safety information and training, and encourage the development of safe work practices at all locations.

It is imperative that all staff, outside suppliers or contractors working in or for the Ministry, comply with any applicable health and safety legislation, and the established Ministry Health and Safety Policy and Procedures. Observance of sound health and safety practices will ensure your safety as well as the safety of your fellow worker.

I trust that each employee will give wholehearted support to the Health and Safety Program and promote on-the-job safety awareness throughout the Ministry.

Gary S. Posen
Deputy Minister

HEALTH AND SAFETY HANDBOOK

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INTRODUCTION

The Health and Safety Handbook has been prepared to provide all employees with information on basic accident prevention, fire prevention and occupational Health and Safety principles.

All staff are encouraged to refer to the M.O.E. Health and Safety Manual, which is available in all work locations, for more specific information on health and safety and the Occupational Health and Safety Act and Regulations.

Your immediate supervisor will require you to become familiar with the health and safety rules, practices and procedures, and to abide by them. These have been developed based on experience in prevention of accidents and occupational illness. It is most important that you develop safe working habits to ensure both your safety and that of your fellow workers.

Management endeavours to provide a safe working environment, and reasonable means of protection against hazards; however, your co-operation and support is required to ensure success of the Ministry of the Environment Health and Safety Program.

If you have any concerns or questions regarding health and safety, do not hesitate to discuss them with your supervisor, a safety committee member, safety representative or safety officer. Whenever we state "Ministry", we refer to the Ministry of the Environment.

SAFETY PROGRAM

A safe working environment for all workers is an objective for which this Ministry strives by administering a Safety Program comprised of these key elements:

- Safety Policy Statement by Management
- Dissemination of Safety Information
- Safety Orientation of New Employees
- Safety Education and Training
- Workplace Inspections
- Issuance and Enforcement of Safe Work Standards
- Health Monitoring
- Provision of Personal Protective Equipment
- Workplace Representatives

SAFETY ORGANIZATION

An effective safety program requires an effective safety organization. The Ministry has established an Occupational Health and Safety Section in the Human Resources Branch who, supported by the Health and Safety Technical Committee, are responsible for the development of the Ministry's Health and Safety Policies and Procedures.

The Safety Co-ordinator and an Industrial Hygienist are located in the Human Resources Branch to co-ordinate the Ministry's Health and Safety Program. As well, the Laboratory Services Complex, South Peel System and the Regions are each served by Safety Officers to carry out safety audits, develop and provide safety training, investigate accidents and serve as health and safety consultants.

In addition, Health and Safety Committees have been established throughout the Ministry to discuss safety concerns and recommend health and safety improvements.

SUPERVISOR'S RESPONSIBILITY

Supervisors shall be responsible for initial health and safety instruction to new employees and for the continuing training and education of all employees in safe working procedures and occupational health matters. Supervisors must also advise all employees of existing and potential health and safety hazards in the workplace. Supervisors shall ensure that every reasonable precaution for the protection of the employee is taken including but not restricted to the employee

- (a) wearing or using protective devices and equipment provided,
- (b) working in a safe manner as required by the Occupational Health and Safety Act and Regulations,
- (c) receiving instruction in writing where required, as to health and safety measures & procedures.

EMPLOYEE'S RESPONSIBILITY

Every employee has a continuing responsibility for safety, both his/her own and that of fellow employees.

Any unsafe acts or conditions of which you are

aware should be reported to your supervisor. Employees are required to use any safety equipment supplied for the job in a proper and safe manner. Employees must work in compliance with the provisions of the Occupational Health and Safety Act and Regulations and all other applicable legislation and safety codes.

The success of the program is dependent upon every employee learning to recognize existing or potential hazards and taking precautionary steps to:

1. remove them,
or
2. guard against them,
or
3. learn the proper procedures to work around them safely.

HEALTH AND SAFETY COMMITTEES

Health and Safety Committees, comprised jointly of Management and Bargaining Unit employees, have been formed within the Ministry. They provide assistance to all personnel

1. by creating an interest in safety among the employee work force; and
2. providing an opportunity for group discussion of accident prevention; and
3. making health and safety recommendations to the employer.

Selected Health and Safety Committee worker members or Health and Safety Representatives are responsible for,

1. inspecting the work place,
2. investigating serious accidents or injury,
3. acting on behalf of employees during refusal to work situations under the Occupational Health and Safety Act.

ACCIDENT REPORTING

Where any accident/incident involving an employee occurs, regardless of the severity, that employee must report the details of the accident/incident and any injury to his/her supervisor at once.

Worker's Compensation Board Accident Report Forms, fully describing the details of any injury, shall be completed by the Supervisor and shall be promptly forwarded to the appropriate authority for mailing to the Worker's Compensation Board.

PERSONAL PROTECTION

Ministry employees from time to time may encounter potential hazards, such as exposure to harmful gases, fumes or dust, hot or corrosive materials or excessive noise.

The Ministry requires all employees to wear or use any personal protective clothing, equipment or devices that are supplied and deemed to be necessary for the employee's protection in carrying out their designated tasks. Any task requiring the use of safety equipment not normally supplied to an employee, shall not be performed until the proper equipment has been supplied by appropriate supervisory personnel.

The Ministry normally makes provision for the supply of the following Health and Safety protection for employees, where their duties require wearing the same.

- (a) head protection
- (b) foot protection
- (c) eye protection
- (d) hearing protection
- (e) respiratory protection
- (f) protective clothing
- (g) hand and arm protection
- (h) face protection

YOU ARE RESPONSIBLE FOR THE CARE AND MAINTENANCE OF ALL PERSONAL SAFETY EQUIPMENT.

BOATING

Employees required to utilize boats in the course of their duties, either for transportation to areas inaccessible by road or for collecting marine samples, may be exposed to numerous hazards. Although drowning, after falling overboard as a result of upset, collision or swamping is the most obvious hazard, slips and sprains account for a large number of injuries.

1. All employees engaged in boating activities must be thoroughly familiar with the equipment they are operating, whether it be a heavy powerplant or a simple paddle, and with the legislation that governs their use.
2. Always check the weather forecast before venturing out to avoid getting caught in rough water. The person in charge of the operation of the vessel should determine whether the weather conditions will permit safe operation. Do not venture out on large bodies of water when conditions may exceed the limitations of the vessel or operator.
3. Leave an itinerary with a responsible person. If you must deviate from it, notify your supervisor at the earliest possible time.

4. Be careful not to overload your boat. Observe the load capacity of the vessel as per Ministry of Transport placard and manufacturer's design specifications.
5. It is recommended that when working on or around water that life jackets be worn at all times.

TRAILERING

Towing a trailer affects the handling and performance of the tow vehicle. The most noticeable effects are the decreased rate of acceleration and the increased distance required to bring the vehicle to a stop.

Special precautions are required to ensure safe operation.

1. Be sure the tow vehicle and trailer are securely attached with two separate means and that the trailer is loaded in such a manner that no portion of the load may become dislodged.
2. Allow ample room when pulling out into traffic, merging, passing or bringing the vehicle to a stop.
3. Signal your intentions well in advance.

CHLORINE

Extensive use of chlorine in water and waste water treatment projects makes it imperative that all personnel associated with projects recognize and avoid the dangers associated with its use, storage and handling. Chlorine, in concentrations as small as 1,000 P.P.M., can be fatal after just a few breaths.

Instruction for the safe handling of chlorine is mandatory for all project employees and is prerequisite to working on chlorine systems.

1. Only trained personnel shall work on chlorine systems.
2. No person should work alone on a chlorine system.
3. Operators must be prepared for emergency action should a minor or major leak occur. As soon as there is any indication of the presence of chlorine in the air, authorized, trained personnel equipped with suitable air masks should take investigative action.

CONFINED SPACES

All employees should be aware that entry into confined spaces may present a threat to their health and/or life. Some of the most common

hazards which may be encountered are: explosive or toxic vapours, dusts, fumes, gases, lack of oxygen, slips and falls.

Examples of confined spaces are digesters, sewer manholes, industrial pressure vessels, septic tanks and water well pits.

Definite precautions to eliminate or at least minimize the hazards are required for the safe entry into a confined space. Approved safe entry and monitoring procedures, including the wearing of approved safety equipment, must be utilized.

Safety instruction on entry, monitoring and rescue procedures is available through supervisory or safety personnel and is prerequisite to working in a confined space.

ELECTRICAL

Shock, burns and fire are primary types of accidents related to electrical power. The basic causes are faulty equipment or wiring, equipment failure, human error or a combination thereof. Over a period of time, equipment can develop frayed cords or insulation breakdown. Electricity takes the shortest and easiest path to ground through good conductors, such as metal. Electricity can easily pass through your body when moisture is present in the form of wet feet, hands or damp floors. For the protection of persons and equipment, make sure that:

1. all work on or near electrical installations is done in accordance with the Ontario Hydro Electrical Safety Code.

2. all circuit breakers are locked out and tagged in accordance with prescribed M.O.E. practices and procedural guidelines to prevent injury when working on electrical circuits and/or mechanical equipment.
3. all electrical equipment is inspected regularly and proper maintenance and repairs are carried out.
4. all cords are free from signs of wear.
5. all switches and outlets have cover plates.
6. all areas are free of makeshift "do it yourself" wiring.
7. fuse plugs are free of pennies or other objects.
8. bare lightbulbs are protected from moisture, physical damage and contact with flammable materials.
9. weather proof outlets and switches are installed out-of-doors.
10. when removing an electrical plug from an outlet, you grip the plug rather than pull on the cord.
11. you protect yourself when working on live installations by placing an insulated medium between you and your work, e.g. rubber matting and approved insulating type gloves.
12. you do not wear loose clothing or jewelry that may contact live exposed parts inadvertently.
13. you do not use wooden or aluminum ladders when working on or near electricity.

REMEMBER! BE CAREFUL. DO NOT EXPLORE AREAS OR DEVICES ABOUT WHICH YOU ARE UNCERTAIN. THERE IS NO HALFWAY SAFETY WITH ELECTRICITY.

SAFETY GUIDELINES FOR EMERGENCY RESPONSE PERSON

The potential hazards associated with the response to emergency situations such as spills and chemical fires are numerous. As a Ministry representative, you are a resource person to the Fire Chief, Medical Officer of Health, Police and Municipal Officials in their response to environmental contingencies. As well, you will provide support for the Ministry's abatement and enforcement mandate under the Environmental Protection Act and Regulations. Your personal safety is paramount in responding to any emergency. Conformance to Ministry Staff Policies and Procedural Guidelines and the Occupational Health and Safety Act is to be considered priority

FIRE PROTECTION

Fire protection and fire prevention are most important because of the presence of flammable and explosive materials.

All Employees should know the location of fire extinguishers, their capabilities and how to use them.

All fire extinguishers must be recharged after use and returned to their place.

Report to your supervisor or health and safety representative any hazard that might result in a fire.

All employees should know what to do when the fire alarm is sounded and how to evacuate their work area and building.

The telephone number of the fire department is to be posted in a conspicuous location at every phone.

FIRST AID

First Aid training is arranged for employees throughout the Ministry at required intervals. This ensures that a sufficient number of qualified employees are available in all work areas.

First aid kits are provided at each work location and in all Ministry vehicles. Trained personnel shall be responsible to maintain the kits and administer first aid.

Persons handling or exposed to hazardous substances, (e.g. phenols, acids, bacteria viruses); engaged in maintenance work, (e.g. dismantling pumps, electrical); exposed to office hazards, (e.g. paper cuts, falling); engaged in construction and inspection work, plant and other field staff require first aid training as per W.C.B. requirements.

HAND TOOLS

Simple hand tools contribute to a large percentage of on the job injuries. Common causes involve, use of broken or worn tools, improper tool usage, carrying or misplacing of sharp tools and falling or dropped tools.

Avoid tool injuries by —

1. using the right tool for the job.
2. maintaining tools in good condition, replacing, repairing worn or damaged wrenches, chisels, etc.
3. storing tools in safe places. Accidents have been caused by tools falling from overhead or by sharp tools carried in pockets or left in tool-boxes with cutting edge exposed.
4. using all tools in a correct and safe manner. e.g. when using knives, cut away from the body.
5. ensuring that all electrical tools are double insulated or properly grounded.

HAZARDOUS CHEMICALS

Hazardous chemicals may cause severe painful tissue damage from inhalation, ingestion or contact with the skin. Contact with the skin or eyes is the most common hazard.

1. Read the label carefully before using any chemical. Be aware of its hazardous properties and emergency procedures in case of accidental contact. In the event of accidental contact with skin or eyes, flush the affected areas immediately with copious amounts of water. Continue flushing until all trace of the contaminating agent is rinsed away.
2. Use eye protection, rubber gloves, aprons, respiratory protection etc. appropriate in the circumstance.
3. Store hazardous materials in clearly marked containers protected from physical damage.
4. All chemical storage areas are posted indicating the hazards by corrosive, flammable etc.

LABORATORY

Laboratory work can involve occupational health risks for which protective measures can be taken. By following safe practices and procedures, these risks can be minimized.

Use protective safety equipment such as respiratory masks, goggles, face shields, lab coats, aprons, gloves, etc. where their use has been designated.

Familiarize yourself with the location and proper operation of fire extinguishers, safety showers and eye wash facilities.

Carry acids, alkalies and solvents in bottle-carriers specifically designed for this purpose.

Chemicals that produce harmful fumes or vapours should be handled in the fumehood.

Chipped or damaged glassware should be brought to the attention of senior staff so that it can be discarded into proper metal containers. Do not pick up broken glass with your fingers, but use a broom and dustpan for collection.

Please consult the "Laboratory and Research Complex" Safety Manual, found in all Ministry laboratories, or your immediate supervisor, if you are uncertain of specific laboratory procedures, or you think that a particular situation may be hazardous.

EMERGENCIES

When the spread of fumes, acids, poisons, solvents, flammable or poisonous gases, or the potential risk of the spread of any type of con-

tamination or personal hazard occurs, take appropriate action.

1. Call for help and warn others.
2. Evacuate the room and isolate by closing door.
3. Do not re-enter the contaminated area until instructed to do so by authorized personnel.

MOTOR VEHICLES

Most vehicle accidents are caused by unsafe acts on the part of drivers or faulty vehicle equipment. Both can be controlled by adhering to the principles taught in Driver Training Programs and by frequent careful vehicle inspections.

1. Drivers should check the vehicle before each trip. Report any defects and have them repaired before setting out. Vehicle equipment that should be checked includes: brakes, lights, horn, mirrors, seat belts, tires, windshield wipers, washers and defrosters.
2. Stay alert and learn to cope with road hazards such as potholes, loose gravel, mud, oil slicks, ice, leaves and railroad tracks.
3. Always think ahead and reduce speed before reaching trouble spots such as traffic signals, intersections, crosswalks or construction zones.

OFFICE SAFETY

Offices are regarded as a safe place to work. However, many accidents do occur. In order to prevent accidents, office workers must be aware of the job hazards and observe good housekeeping rules.

FALLS AND SLIPS

Falls and slips are responsible for nearly half of all disabling injuries to office workers.

1. Short cuts between desks, waste baskets, open drawers, telephone and electrical cords, can cause a trip.
2. Keep aisles and stairs clear of obstructions, a paper clip, pencil or rubber band on the floor can cause a fall.
3. Use proper steps or a ladder to reach high shelves. Do not climb on file drawers.
4. Always wipe up spills, carry hot beverages on a tray to avoid burns as well as falls.
5. Do not carry vision blocking loads.
6. High heels add to the fall hazard. Wear well-fitted shoes with low rubber heels and take care on stairs, always use the handrail.

CUTS AND PUNCTURES

Cuts and punctures are probably the most common office injuries and can be dangerous if left unattended. Simple cuts can easily become infected and cause blood poisoning. Misuse of office tools is risky.

1. Scissors should be passed, handle first, blades together and never used as a pry or a screwdriver.
2. A stapler can inflict a serious wound. Never test a jammed machine by holding a thumb over the business end. Do not attempt to remove staples with your fingernails.
3. The paper cutter is an efficient device for trimming paper or fingers. Anyone using the office paper cutter should keep hands away from the cutting edge and ensure that the spring tension is adjusted properly, so that the blade will not fall under its own weight.
4. Paper cuts are an annoying type of injury. They hurt and may become infected. Cuts can be avoided by using rubber finger guards when working on stacks, by picking up sheets of paper at the corners, not the side, by moistening envelopes and labels with a sponge or wetting device, other than the tongue.

ELECTRICAL HAZARDS

When insulation in electrical office equipment becomes worn or damaged, electricity can pass from wires, controls or motors to the metal parts of the machine. Contact may result in a slight tingling or an unpleasant shock with associated burns or even death.

1. Inspect your equipment regularly and have worn or damaged equipment repaired or replaced.

2. Ensure that all outlets have three-prong receptacles to provide grounding for each electrical appliance.

PROTECT YOUR FINGERS

Pointed instruments such as compasses, scissors, pens, pencils, pins, thumb tacks, can spear groping fingers.

1. Keep stabbing objects safely separated in boxes with lids, proper storage is a must.
2. Watch where you reach when searching through desk drawers.
3. Broken glass should be swept up, not picked up with fingers.

PROTECT YOUR BACK

Back injuries from lifting or pushing happen easily and can last a life time.

1. Utilize the leg muscles for heavy lifting. Do not put a strain on your back.
2. Get assistance to lift or move heavy objects.

POWER EQUIPMENT

Each year, despite manufacturer's safeguards, the use of power tools accounts for a number of accidents involving cuts, bruises, burns and strains. The user has the final responsibility in safe power equipment operation and therefore, the opportunity to prevent disabling accidents.

1. Read any equipment manual carefully and

learn the equipment applications and limitations as well as specific hazards related to their operation.

2. Smoking and open flames are forbidden where equipment fuel is being handled or stored. Only approved safety fuel containers shall be used in storing fuel. All equipment should be stopped and allowed to cool before refueling.
3. Follow the manufacturer's published maintenance procedures.
4. Insure that all electrical equipment is properly grounded.
5. Keep all guards in good working order and in place.
6. Keep the work area clean and as free from clutter as possible.
7. Operator's clothes should be close fitting and suitable for the climate. No loose clothing or jewellery that can get caught in moving parts should be worn. If excessive noise is a factor, hearing protection should be worn. Safety boots with non-skid soles and safety toes should be worn.
8. Operators working near power lines should take care that neither they nor the equipment they are operating touch the lines.
9. Don't surprise or touch anyone operating power equipment. The distraction could cause an accident.

PESTICIDES

Pesticides application is a very serious business that can cause illness or even death.

Handling of Pesticides shall be in accordance with the requirements of the M.O.E. Pesticides Licensing Branch. Personnel involved in the handling, storage and use of pesticides, must be advised of the hazards and be properly licensed.

SAFETY GUIDELINES FOR SAMPLING

Samplers may be exposed to many potential hazards inherent to the locations in which the sampling is conducted. Examples of hazardous locations are slippery river banks, heavily travelled roadways, elevated stations, (bridges, roof tops). The nature of the material to be sampled may also contribute to the hazards e.g. flammability, corrosiveness or toxicity. Observation of the applicable sections of the Occupational Health and Safety Act, is essential as is diligence in the following:

1. In potentially hazardous areas, adequate personnel should be present to ensure the safety of all.
2. Where vehicle or pedestrian traffic may endanger the safety of any samplers, appropriate

safeguards such as barriers, traffic cones, fluorescent clothing, warning signs and/or lights shall be employed for the protection of all workers in the area.

3. Safety footwear must be worn when removing manhole covers or when working in any area where worker may be exposed to foot injury.
4. When on industrial property or at pollution control plants the sampler, if not familiar with the process and associated hazards, must be accompanied by a person who is aware of the hazards and the Company safety rules.
5. Rules of basic hygiene should be followed when sampling sewage, industrial wastes or contaminated soils. Gloves and other protective clothing should be worn when sampling and decontaminated or disposed of after use. Personnel should wash hands and face thoroughly after sampling activities are completed and before eating or smoking.
6. Chemicals and samples transported in breakable containers should be protected against breakage and spillage. Bottles containing materials which may generate gases (e.g. sludge) should be not more than half full to allow for expansion of gases. Potentially dangerous samples should be clearly identified with labels warning of the hazards i.e. flammable, corrosive, toxic, radio-active etc.

7. All persons handling chemical preservatives and samples should read the labels and observe the appropriate precautions. Avoid rough handling which may cause undue agitation or breakage of containers.

WELDING

The use of both acetylene gas and arc welding equipment involves many hazards such as fire, toxic fumes, explosive mixtures and damaging ultra-violet rays.

Welding can be done safely when handled properly and by safe practices and procedures.

1. Only persons trained in welding and cutting operations, and supplied with the appropriate personal protective equipment for the job should undertake any welding operation.
2. Welding fumes are hazardous and require a well ventilated area or the wearing of a respirator.
3. Housekeeping is important. Combustible materials must be protected from sparks and molten slag.
4. Heat build up in a cylinder can cause excessive gas pressure. Keep all cylinders away from open flame, hot sun or other heat sources.

M.O.E. TECHNICAL TRAINING COURSES

Safety training is available to M.O.E. personnel. Safety practices and procedures are addressed in the following training courses. These include:

- Care and Use of Personnel Protective Equipment

- Confined Space Entry

- Defensive Driving

- Fire Prevention

- First Aid

- Gas Detection

- Laboratory Safety

- Occupational Health and Safety Act (O.H.S.A.) Legislation

- Pesticides Licensing

- Snow-mobile Safety